IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	:	
Parsons et al.	:	Examiner: Arden B. Sperty
U.S. Serial No. 09/883,520	:	Group Art Unit: 1771
Filed June 18, 2001	:	
Docket No. 1931.VIN	:	
For: WATER DISPERSIBLE, SALT SENSITIVE NONWOVEN MATERIALS	:	

Commissioner for Patents
PO Box 1450
Alexandria, VA
22313-1450

DECLARATION UNDER 37 CFR 1.131

Steven P. Pauls, Sr., co-inventor of the subject matter of the above-noted patent application hereby declares that:

1. He has worked in the field of polymer technology for 24 years, and that he is a co-inventor of the pending '520 application referenced above. That the pending application is directed to nonwoven webs which have a salt-sensitive emulsion binder.

2. That he understands from Counsel that the pending claims have been rejected over (1) United States Patent No. 6,683,129 to *Eknoian*, which has an effective date as a reference of March 31, 2000; and (2) United States Patent No. 6,562,892 to *Eknoian et al.*, which has an effective date as a reference of March 30, 2001.

3. That he makes this *Declaration* on personal knowledge of the facts stated herein.

4. That prior to March 31, 2000, the invention of the above-noted patent application was reduced to practice. Specifically, salt sensitive emulsion binders were provided to nonwoven webs for testing purposes, where the emulsion polymers were non-dispersible in salty solutions, and dispersible in water. The nonwoven webs were tested according to the invention, and specifically, the samples included all of the features of, for example, independent claims 1 and 14 of the pending application.

5. Attached to this Declaration are (redacted) pages 1, 4, and 5 of a laboratory notebook dated prior to March 31, 2000 confirming the manufacture of the nonwoven product described in paragraph 3 above. Page 1 of the notebook outlines the compositions of the polymers used and page 4 describes the process by which the emulsions resins were provided onto Whatman #4 Chromatography paper, which is a nonwoven substrate. As can be seen on page 4, the polymers included hydrophilic monomers such as methacrylic and acrylic acid, and non-hydrophilic monomers such as butyl acrylate and methyl methacrylate. It is further noted at the top of page 4 that the objective of the experiment is to measure the water and salt sensitivity of each resin. Finally, it can be seen on page 5 of the notebook that the polymers exhibit salt-sensitivity, such that the paper has higher tensile strengths in salt solutions than water.

6. Thus, in his opinion, it is clear from the record that the invention in the pending application was tested prior to March 31, 2000.

7. The undersigned Declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and

that such willful false statements may jeopardize the validity of the subject application or any patent issuing thereon.

Dated 24-May-2006

Steven P. Pauls, Sr.

NATIONAL STARCH

№ 11421- 1

Project No.

Date Started [redacted]

Object SPR Sample Submission

The following samples were submitted by SPR for analysis of salt and water sensitivity differences. Mike Ekman is the chemist responsible for synthesis of these polymers.

I am submitting the following 7 samples for evaluation, once again we are mainly interested in the tensile strength. Could you also run a control sample under the same conditions so we can directly compare ours to the "benchmark". Here are the analyticals for the submitted samples along with the composition:

	Composition	% Solids	pH	Viscosity	Grit
10630-12 B	MAA/AA/BA/MMA	29.5	2.1	13.5 cPs	0.009
10630-13 A	MAA/AA/BA	30.5	2.6	20	0.02
11234-68 B	MAA/AA/BA/MMA	29.8	2.7	16	0.03
11234-70 A	MAA/AA/MMA/BA/DOM	29.7	2.5	16	0.003
11234-70 B	MAA/AA/MMA/BA/MOM	30.0 →	2.3 →	16 →	0.006 →
11234-70 C	MAA/AA/MMA/BA/AMPS	29.8			
11234-75 A	MAA/MMA/BA	29.3	2.1	14	0.004

For your information;

DOM - dioctyl maleate
MOM - monoctyl maleate
AMPS - ammonium AMPS

Please let me know if you need any more information or have any questions.

[redacted]

DATE [redacted]

... AND UNDERSTAND THE CONTENTS

[redacted]

Date

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Nº 11421- 4

[redacted]

Saturation ; Tensile Study

OBJECTIVE: USE THE SAMPLES, REFERENCE 11421-01 OF THIS NOTEBOOK, FOR SATURATIONS TO ASSESS THE WATER AND SALT SENSITIVITIES OF THESE EMULSIONS.

PROCEDURE: SATURATE THE WHATMAN FILTER PAPER, DRUM DRY, AND TEST 'WET' STRENGTH UNDER VARIOUS SOAKS.

1. CUT WHATMAN #4 CHR PAPER TO 7.5 x 23.5" (LENGTH) ; WEIGH TO 0.01 GRAMS (CONDITIONED AT CTH)
2. FORMULATE THE SAMPLES AS PER PAGE -05 OF THIS NOTEBOOK.
3. DIP SATURATE ON THE WERNER MATHIS SATURATOR (1-982), WITH SETTINGS AT 6 BAR PRESSURE AND 4.5 m/min ROLL SPEED
4. DRUM DRY THREE PASSES 210°F (1-1267)
5. RE-CONDITION TO CTH, TRIM OFF EXCESS, AND CALCULATE % ADD-ON
6. CUT 24 @ 1 x 3.75" CURED TENSILES ; WEIGH ; CALCULATE BASIS WEIGHT IN gm/m²
7. SET-UP INSTRON #5542 AS : 2" GAGE LENGTH 1"/min CROSSHEAD SPEED USE 2016 LOAD CELL
8. SOAK TENSILES AS : (4 TENSILES PER SAMPLE/SOAK)
   - 1 MINUTE IN 4% NaCl Solution*
   - 1 MINUTE IN DEIONIZED WATER
   - 60 MINUTES IN 4% NaCl Solution*
   - 60 MINUTES IN DEIONIZED WATER
9. RECORD AVERAGE PEAK LOAD VALUE AND STANDARD DEVIATION
10. FOLLOW-UP WITH THE WORK ABOVE, ADDING SOAKS OF 1 MINUTE AND 60 MINUTES IN 3% NaCl SOLN

DATA:

	A	B	C	D	E	F	G	H
% ADD-ON	15.1	14.5	14.4	14.2	14.4	14.3	14.8	17.7
WEIGHT OF 24 x 1 x 3.75	6.117	6.035	6.071	6.106	6.060	6.038	6.146	6.345
BASIS WT gm/m²	105.3	103.9	104.5	105.1	104.3	103.9	105.8	109.2

TENSILES → SEE OPPOSITE PAGE

COMMENTS/CONCLUSIONS : THE 'F' SAMPLE (11234-70C) CONTAINS AMAS, AND APPEARS TO HAVE SIGNIFICANTLY MORE WATER SENSITIVITY THAN THE OTHERS, ESPECIALLY WITH A ONE-HOUR SOAK. THIS MUST BE CONFIRMED. THE 'G' SAMPLE (11234-75A) CONTAINED NO ACRYLIC ACID, AND HAD THE LOWEST AMOUNT OF SALT WATER STRENGTH. THIS SHOULD BE EXAMINED FURTHER, IN COMPARING & CONTRASTING TO THE 11629-144A, WITH 30 AA.

Steven P Pruett

[redacted]

[redacted]

NATIONAL STARCH

№ 11421- 5

Project No. Date Started

Object: CONTINUED FROM PAGE -04

Reference: 11421-04

Substrate: Whatman #4 CHR

Polymer/Additive	CAS #	Solids	A	B	C	D	E	F	G	H
10630-12B		29.5%	86.4							
10630-13A		30.5%		83.6						
11234-68B		29.8%			85.6					
11234-70A		29.7%				85.9				
11234-70B		30.0%					85.0			
11234-70C		29.8%						85.6		
11234-75A		29.3%							87.0	
11629-144A		30.0%								85.0
Deionized Water	7732-18-5	0.0%	63.6	66.4	64.4	64.1	65.0	64.4	63.0	65.0
	Bath pH		2.15	2.09	2.69	2.06	1.93	2.02	2.20	3.63
	Bath Viscosity	cps	N/R							
	Total Bath		150	150	150	150	150	150	150	150
	Bath Solids		17.0%	17.0%	17.0%	17.0%	17.0%	17.0%	17.0%	17.0%
	Total Solids		25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
	Additives Factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
	Polymer Solids		25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
			LUMPS	CLUMPS LUMPS	LUMPS LUMPS	Runny	LUMPS	CLUMPS	LUMPS	LUMPS
One Minute Soak	4% CMD 3% NaCl	(gf)	1806	2118	1650	1605	1814	1567	SJS	850
	SP	(std dev)	18.6	156.9	36.5	26.7	19.9	62.2	3.8	44.6
One Minute Soak	CMD DI Water	(gf)	1525	1896	1409	1339	1603	597	486	426
	4%	(std dev)	41.6	57.0	42.4	49.2	19.1	7.2	36.3	76.2
One Hour Soak	CMD 3% NaCl	(gf)	1154	1197	1019	1028	1041	764	442	174
	SP	(std dev)	54.4	53.3	52.8	30.7	46.6	47.1	18.2	14.6
One Hour Soak	CMD DI Water	(gf)	867	938	779	770	795	517	310	111.5
		(std dev)	45.0	43.3	37.8	78.2	45.3	14.2	12.0	44.8
ONE MINUTE										
~~Three Hour~~ Soak	CMD 3% NaCl	(gf)	1686	1712	1503	1528	1686	1455	1018	1133
SP		(std dev)	35.6	16.8	79.9	51.5	14.4	39.6	53.4	106.0
ONE	3% NaCl									
~~Three~~ Hour Soak	CMD ~~DI Water~~	(gf)	1359	1497	1444	1318	1597	1305	949	602
SP		(std dev)	168.0	52.3	39.0	82.3	7.1	40.7	10.6	34.4

[redacted]

WITNESS [redacted] DATE [redacted]

I WITNESS THIS DOCUMENT AND UNDERSTAND ITS CONTENTS

Signature [redacted] Date